

CENTRAL INTELLIGENCE AGENCY  
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INTELLIGENCE MEMORANDUM

Economic and Military Impact of Destruction of Dredges  
in the Port of Haiphong

I. Importance of Dredges

There are 3 dredges employed in the port of Haiphong and a total of 8 in North Vietnam. One dredge at Haiphong is of the modern suction-type of Soviet manufacture with a capacity of 950 cubic yards per hour and the remaining 2 are low-capacity clam-bucket types. In order to handle ocean-going ships the harbor needs constant and systematic dredging. In addition the Canal Maritime and the channel in the Cua Cam River which extends some 20 miles before emptying into the Gulf of Tonkin, must be dredged. If no dredges were available, it is estimated that the harbor would be completely blocked to oceangoing ships within 6 months.

II. Actions Available to North Vietnam if Dredges are Destroyed

If the three dredges in the port of Haiphong were destroyed there are several courses available to North Vietnam in attempting to keep the port open for oceangoing ships or in attempting to compensate for the loss of a portion or all of the port's capacity to handle seaborne trade.

A. Redeploy Other Dredges in North Vietnam to Haiphong

The five remaining dredges in North Vietnam are believed to be used principally for improvement of the inland waterways, and for maintenance of the required channel depth for Nam Dinh, a minor port for coastal traffic. During the rainy season (currently underway) the requirement for dredging on the inland waterways practically disappears so that the dredges normally allocated to this purpose could be moved to Haiphong. Although these dredges are of low capacity they, nevertheless, could compensate to an important extent for the loss of the Haiphong dredges.

B. Borrow or Buy Dredges from Communist China and the USSR

Communist China has dredges employed in the harbors at Fort Bayard and Canton and in the smaller harbors of Hainan Island. If Communist China were willing to forego the port improvements in which some of these dredges are employed it would be possible to move them to Haiphong in 2 to 3 weeks.

The movement of dredges employed in the Soviet Far East would take 4 to 5 weeks. The movement of dredges from Soviet ports in the Black Sea would take 8 to 10 weeks. Finally, the construction of the hulls for low-capacity dredges could probably be undertaken in the several boat yards at Haiphong. Clam-buckets, cables and machinery would have to be imported from China or the USSR. Completion of such low-capacity dredges would probably take 8 to 10 weeks.

C. Use of Small Craft as Lighters

As the harbor and channels begin to silt up for lack of dredging the North Vietnamese could employ the numerous harbor craft such as lighters, barges, junks and sampans to offload parts of the cargo of ocean-going ships prior to their entering the channel leading to Haiphong. With the draft reduced, oceangoing ships could then proceed to normal unloading areas within the harbor. The chief problem in an operation of this type would arise in the handling of oilers. North Vietnam is known to have only 2 small transport tankers based at Haiphong. The deadweight tonnage of these craft is about 300 tons each. It could take as long as 10 days to offload sufficient petroleum from a 10,000 ton oiler to make it possible for such an oiler to proceed to the petroleum pier.

D. Use of Railroad or Truck Transport to Compensate for Reduction in Capacity of Haiphong

A railroad and three roads connect the Kwangsi Region and Kwangtung Province of China with Hanoi and Haiphong. If Haiphong were to become completely or partially unusable all import traffic and the bulk of the exports which normally move through Haiphong could be handled through South China ports, primarily Fort Bayard. A conservative estimate of the capacity of the meter-gauge rail line between P'ing-hsiang, the transloading station in Communist China, and Hanoi is about 3,000 metric tons (mt) each way per day or about 1.1 million mt per year. The connecting railroad in China has a higher capacity. It is estimated that toward the end of 1964 the volume of goods being moved through P'ing-hsiang from China into North Vietnam was between 1,200 and 1,500 mt per day,\* which amounted to about one-half the estimated capacity of the line. At this level of traffic the rail line, therefore, could carry an additional 1,500 to 1,800 mt per day into North Vietnam. The estimated seaborne imports during 1964 amounted to at least 700,000 and possibly as high as 800,000 mt, or

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\* Including North Vietnamese imports and Chinese transit traffic moving between the Chinese provinces of Kwangsi and Yunnan by way of the North Vietnamese railroads.

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between 1,900 and 2,200 mt per day. The railroad could carry the majority of this tonnage and the remainder could be moved by highway transportation. A shortage of narrow-gauge tank cars for carrying petroleum probably would be the major difficulty encountered by the North Vietnamese if the sea-borne imports were to be shifted to rail transport. Some petroleum products could be moved in drums by rail or truck and by tank truck but would require more time and expense than the movement by tank car.

Export through Haiphong were estimated to have been about 800,000 mt or about 2,200 mt per day in 1964. Because the volume of exports shipped to China by rail is not large currently, the railroad to Ping-hsiang has sufficient capacity to move all exports that are normally exported through Haiphong. Some of these exports, are apatite, and other low-value, high-volume commodities, however, and the additional cost of rail transport en route to the ports of China would be so great as to make the price that would have to be charged not competitive in world markets. Thus, North Vietnam would be denied the ability to acquire foreign exchange, a consideration which is not of great importance in the present situation.

#### E. Use of the Ports of Cam Pha and Hon Gay

North Vietnam has only two ports, in addition to Haiphong, which can accommodate large oceangoing ships. These are the ports of Cam Pha and Hon Gay, located northeast of Haiphong. They are especially equipped to export coal and have very limited facilities for handling other types of cargo. Moreover, neither of these ports has rail connections with the main railroad system of North Vietnam, and cargo moved through them has to be transported by road, barge and other coastal craft. Shortages of trucks and other high priority requirements for trucks would limit the use of road transport to clear these ports although some import cargo could be unloaded by using ships' gear. Ships could also unload cargo into barges and other coastal craft, but the distances involved to and from Haiphong and the lack of facilities at Cam Pha and Hon Gay lead to the conclusion that these ports cannot be regarded as complete alternates to Haiphong. They could be used, to a minor extent as alternates to Haiphong, however in the event that silting prevented oceangoing ships from serving Haiphong.

### III. Importance of the Port of Haiphong

#### A. Shipping Service

Of North Vietnam's total foreign trade, at least 80 percent of its imports and about 40 percent of its exports move through the port of Haiphong. Rail transport accounts for most of the remaining 20 percent of

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North Vietnam's imports, but only a small amount of its exports. The other 60 percent of the exports consist for the most part of coal, which is exported mainly through the coal ports of Cam Pha and Hon Gay. The port of Haiphong has an estimated capacity of about 4,500 mt per day of dry cargo (or about 1.6 million mt per year) and 800 mt per day of petroleum in bulk (or nearly 300,000 mt per year). During 1964, imports of dry cargo moving through Haiphong are estimated to have been at least 560,000 mt and possibly as high as 660,000 mt. Exports of dry cargo through Haiphong in 1964 are estimated at about 800,000 mt, giving a total of 1.4 million to 1.5 million mt of dry cargo--a level which approached the capacity of the port for dry cargo. In addition, about 142,000 mt of petroleum products were imported through Haiphong in 1964, a level of about half the port capacity for petroleum.

Because North Vietnam has only 1 fair sized cargo ship used mainly between Hong Kong and Haiphong and a few small ships used mainly for coastal trade, virtually all of its seaborne trade is carried in foreign merchant craft. Although a precise division of ship arrivals by port of arrival cannot be made, it is estimated that at least 425 of about 580 foreign ship arrivals in 1964 were made at the port of Haiphong. The remaining arrivals were made almost entirely at Cam Pha and Hon Gay to load coal. A breakdown by flag of the estimated arrivals at Haiphong is shown in the accompanying table.

Ships flying Free World flags accounted for nearly 60 percent of the arrivals and about 47 percent of the gross register tonnage of ships observed in Haiphong in 1964, while Communist Chinese ships accounted for 16 percent of the arrivals and about 12 percent of the tonnage. The remaining arrivals at Haiphong consisted of about an equal number of ships from the USSR and from the European Satellite countries.

Although similar data for Haiphong during the first part of 1965 is not yet available, the number of ship arrivals at all North Vietnamese ports observed during the first five months of 1965, if projected on an annual basis, indicates that the level of foreign trade passing through Haiphong probably has increased in 1965. The number of Free World flag ship arrivals at all ports in North Vietnam increased about 10 percent in the first quarter over the 1964 level and arrivals by Bloc ships increased about 50 percent. In 1965 most of the ships have called at Haiphong and some then proceeded to other ports to load coal.

Haiphong is also the focal point for much of North Vietnam's inland and coastal water traffic. The most important coastal water traffic in North Vietnam is the shipment of coal by barge from Cam Pha and Hon Gay

to Haiphong. The most important inland water traffic probably is the movement of foreign trade and domestic traffic on the inland water network between Haiphong and Hanoi. Because most of this coastal and inland water traffic is moved by small steamers, barges, and other shallow-draft craft, this traffic would be little affected by silting in Haiphong harbor.

B. Importance of Seaborne Foreign Trade and Coastal Traffic

The North Vietnamese economy, which is basically one of subsistence agriculture, has only a small modern industrial sector concentrated in a few urban centers, one of which is Haiphong. This small industrial sector is heavily dependent on imports of machinery and raw materials, principally from Communist China and the USSR. The country imports little food, even in poor agricultural years, and depends largely on domestic production to feed its population of about 18 million persons. North Vietnam produces only minor items of military equipment--grenades, mines, mortars, and ammunition for small arms--and must import all of its heavy military equipment and most of its small arms, ammunition, and medical supplies from Communist countries.

The foreign trade of North Vietnam has been an important factor in the economic development of the country. Machinery and equipment represented about half of the value of the total imports of North Vietnam during 1961-63. Soviet deliveries of equipment for complete plants grew particularly rapidly during this period. Most of these shipments move through Haiphong. Imports from Communist China consist largely of industrial raw materials and semi-manufactured products with machinery being less important than it is in imports from the USSR. Imports from Communist China move mainly by rail through Dong Dang and by ship through Haiphong. The most critical industrial supply item imported by North Vietnam is petroleum which arrives principally at Haiphong by tanker. Most industrial chemicals are also imported, although the small indigenous chemical industry has recently been expanded particularly to produce chemical fertilizer. The country also imports all of its steel products, particularly all of its railroad rolling stock and vehicles, and most of its complex machinery, metal manufactures, spare parts, chemical fertilizer, and raw cotton.

North Vietnam exports handicraft products made from agricultural raw materials, light industrial products, and some unprocessed agricultural products, although exports of the latter have declined since 1959. Products of the extractive industries, particularly coal and apatite, represent about one-third of the value of total exports. Cement and apatite are the major bulk commodities exported through Haiphong.

IV. Impact of the Destruction of Dredges

A. Impact on the Economy

In view of the alternative courses of action available to North Vietnam, as outlined in Part II above, it is estimated that there would be no serious short or long term effect on the economy, as a consequence of the destruction of the dredges in the port of Haiphong. Such an operation, if successful, nevertheless, would create a great deal of confusion, disorganization, and add to the problems already confronting the country. In both the short and long term, however, it would be regarded as an irritating challenge rather than a catastrophe. Implementation of any of the counter-measures would require hard decisions which would involve the reallocation of relatively scarce resources, including manpower, and would again test the willingness of Communist China and possibly also the USSR to provide additional aid to North Vietnam.

B. Impact on the Military

There is no evidence that cargo moved through the port of Haiphong has contained material that could be said to be strictly military end items. Military shipments to North Vietnam are estimated to move principally from Communist countries by way of the secure railroads of China to P'ing-hsiang, the railroad transloading station for North Vietnam. From this point shipments either continue by rail into North Vietnam or are moved by truck to storage areas in North Vietnam. The destruction of the dredges at Haiphong, therefore, would have no impact on the ability of North Vietnam to obtain arms for the military establishment, and to continue aggression.

V. Impact of Blocking Completely the Approach for Oceangoing Ships to Haiphong\*

Initially, the blocking of an approach for oceangoing ships to Haiphong would cause great confusion. Organization of a fleet of small craft as outlined in Part II, above, for effective operations may require several weeks. The North Vietnamese press has often discussed inefficient loading and unloading operations in all modes of transport and the difficulties

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\* It is not known what method is being considered for blocking the approach. Possibly the method would include the sinking of a ship in the Maritime Canal.

of coordination between the various modes of transport. The use of a large number of small craft would also probably divert them from their normal movement of domestic traffic on the coastal and inland waterways. Furthermore, a sudden blockage of a channel would probably confine in the harbor at least 6 oceangoing ships that normally are loading or unloading cargo. Some of these would be owned by Free World countries.

After a reasonable period of time, however, it would be possible, as described in Part II, for North Vietnam to shift at least a small portion of its international seaborne trade to other ports in North Vietnam and a major share of the remainder to the rail and road transport connections with Communist China. Both the short and long term impact, therefore, would be essentially the same as described in Part IV, above. This action, however, would create greater initial problems because its physical effect on the movement of oceangoing shipping would be immediate rather than gradual as in the case of destroying dredges. Counter-measures and decisions regarding them would have to be taken with greater urgency. For additional detail regarding the vulnerability of Haiphong to blockage see the Appendix, attached hereto.

Appendix

Vulnerability of the Port of Haiphong to Blockage

The entrance to Haiphong harbor is from the Gulf of Tonkin through the lower reach of the Cua Nam Trieu and the Canal Maritime. The Canal Maritime is about 3,900 feet long and between 450 and 700 feet wide. The harbor fairway is dredged to a minimum of 26 feet (at low water). The depth of the Canal Maritime at its northwestern end is shown on a hydrographic chart to be 23 feet, but this also probably has been deepened to 26 feet by dredging. If the Canal Maritime could be effectively blocked, the harbor at Haiphong would be closed to oceangoing ships, because there would be no alternate routes to the port for vessels with drafts of more than 11 feet.\*

The Cua Cam River empties into the Gulf of Tonkin south of the Canal Maritime, but is so shallow that oceangoing ships could not move up to Haiphong. There is another branch of the Cua Cam north of the Canal Maritime which then empties into the Cua Nam Trieu and the Gulf of Tonkin, but this branch, although deeper than the southern arm, is also too shallow to permit oceangoing ships to travel through it. To deepen either of these branches of the Cua Cam would require dredging a distance of at least 4 miles. To dredge a 100-foot-wide channel for this distance to a depth of 28 feet, using a dredge with a capacity of 950 cubic yards an hour, would take an estimated 1,371 hours. If one dredge were in operation for 10 hours daily, it would take about  $4\frac{1}{2}$  months to open a new channel. If more than one dredge could be used it might reduce the time required to open a new channel. It also might be possible to remove the obstruction from the Canal Maritime or to dredge around it, in less than  $4\frac{1}{2}$  months.

Blocking the Canal Maritime would cause silt to accumulate in the harbor area at a faster rate than it usually does, and would, therefore, require more dredging to keep the harbor open.

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Table

North Vietnam: Foreign-Flag Ship Arrivals at Haiphong  
 by Flag  
 1964

<u>Flag</u>	<u>Number of Arrivals</u>		<u>Gross Register Tons</u>	
	(Units)	(As a Percent of the total)	(In Thousand Tons)	(As a Percent of the total)
Total	<u>425</u>	<u>100</u>	<u>1,844.5</u>	<u>100</u>
Free World	<u>251</u>	<u>59</u>	<u>872.5</u>	<u>47</u>
Denmark	2		6.8	
Finland	1		5.7	
France	1		2.9	
Greece	27		197.4	
Italy	2		14.4	
Japan	30		75.6	
Lebanon	12		68.6	
Netherlands	10		21.9	
Norway	38		94.9	
Panama	6		34.2	
Sweden	2		13.8	
United Kingdom	116		318.9	
West Germany	4		17.4	
USSR	<u>48</u>	<u>11</u>	<u>359.5</u>	<u>20</u>
European Satellites	<u>56</u>	<u>18</u>	<u>385.4</u>	<u>21</u>
Czechoslovakia	7		45.5	
East Germany	1		9.6	
Poland	48		330.2	
Communist China	<u>70</u>	<u>16</u>	<u>227.2</u>	<u>12</u>